

Hybrid Messaging

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Agenda

- The **Miracle** Story
- Miracle's IBM Technical Expertise
- **Messaging** RoadMap
- Advantages of MQ Light/AMQP
- IBM MQ ,MQ Light comparison
- **Hybrid Messaging Scenario's**
- **Q/A** Session

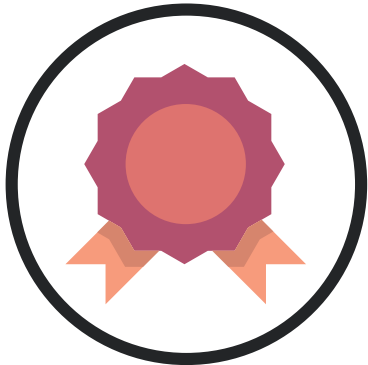
The **Miracle** Story



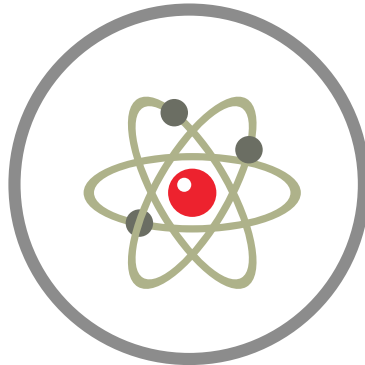
Customer Satisfaction



Affordable Innovation



Quality and Efficiency



Talent Eco-System

12
Global Locations

15+
Technology Partnerships

25+
Technology Accelerators

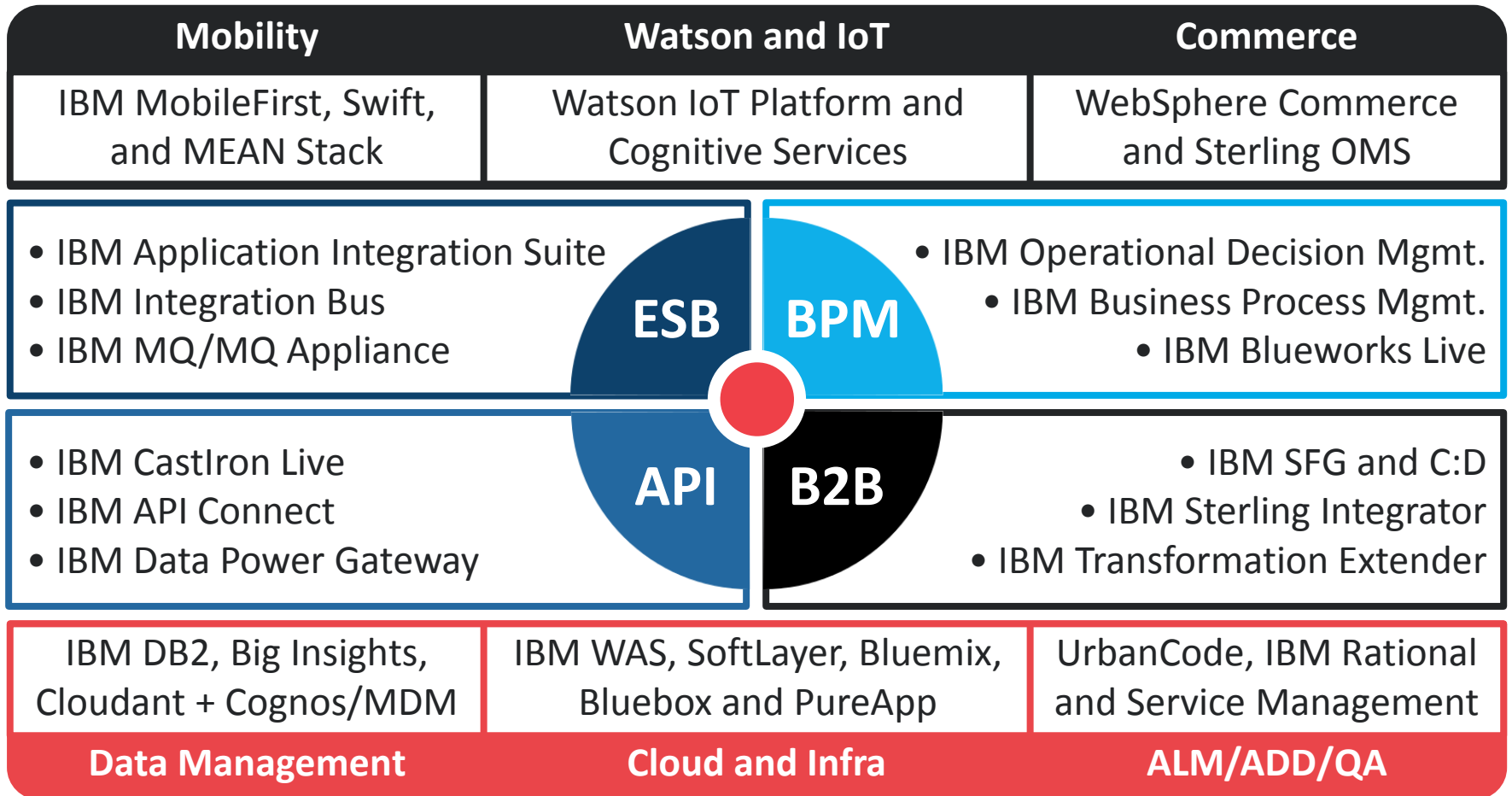
20+
Years of Expertise

500+
Certified Professionals

85+
Fortune 1000 Customers

2000+
Employees Globally

Miracle's Technical Expertise - IBM



Our **Core IBM Expertise** helps us to enable our customers to understand, test, implement, measure and adjust market demands pertaining to **Digital Transformation**

Miracle Integration Center Of Excellence

Key Highlights

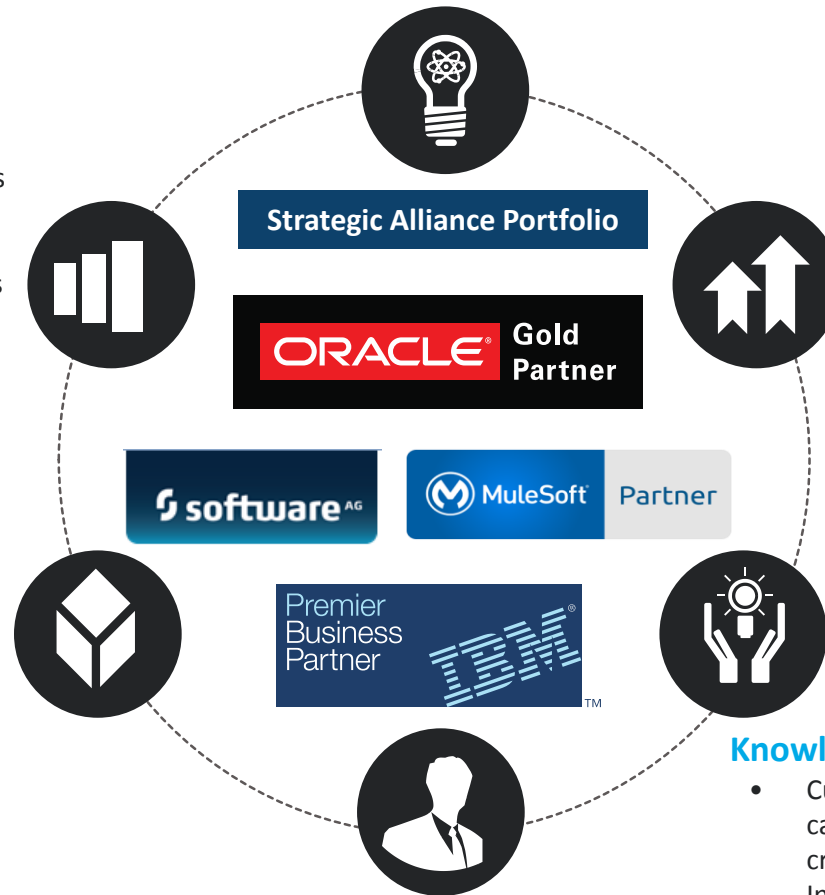
- CoE established in the year 1998, over 20+ years of Industry experience
- Over 250 Technology professionals
- Served over 120 B2B customers globally
- Work closely with product vendors to bring the Engineering side of learnings and best practices to resolve issues or customers

Industry Verticals Experience

- Hi-Tech Manufacturing
- Retail & e-commerce
- Logistics & Fright Management
- Healthcare
- Automotive
- Pharma

Assets & Frameworks

- Advanced Integration Solution Center
- Development of re-usable assets
- Development of Frameworks and methodologies
- Establishing Best Practices
- Developing bench mark tests for various products and technical evaluation



EAI Technology Landscape

- Oracle Service Bus
- Mulesoft – Any point Platform
- Active/Rabbit MQ
- Apache Kafka
- IBM Integration Bus
- IBM MQ
- IBM Data Power
- IBM API Connect
- IBM WSRR

Thought Leadership

- Participate in Industry Forum discussions
- Speaking in conferences and seminars
- Publishing whitepapers

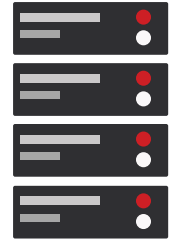
Knowledge Management & Learning

- Customer specific Product training boot camps, hands' on mentoring, assist in creating Proof Of Technology based on Industry use cases
- Set-up & run CoE for customer's needs
- Complementing the parallel teams of Miracle in creating delivery excellence

2016 Cloud Investments

24%

IT Spend will
be on Cloud



Investment Areas

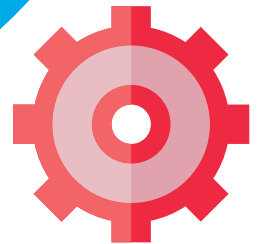
24%

49%
Software
as a Service

28%
Infrastructure
as a Service

28%
Platform as
a Service

5%
Other



Messaging RoadMap

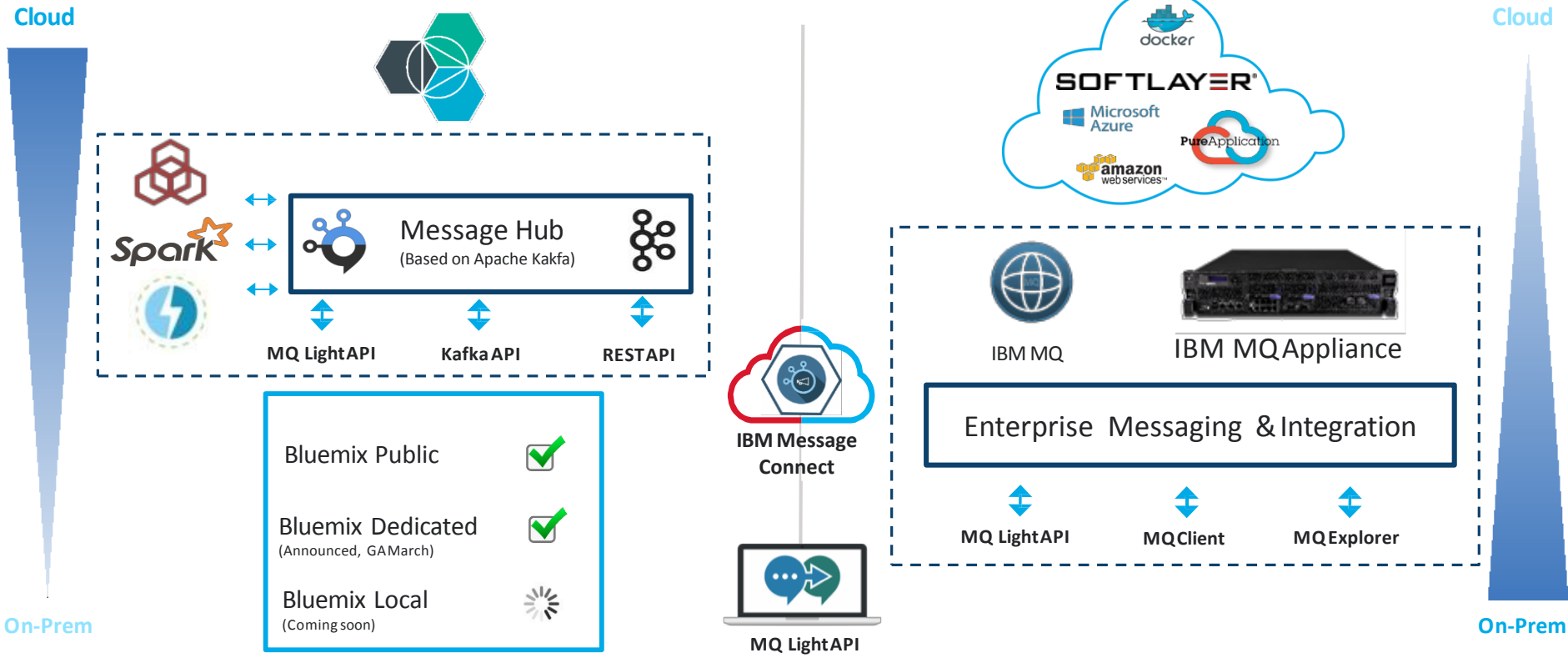
Environment, Background and
Advantages

Hybrid: Environment

Implementation Options

Digital IT

Enterprise IT



MQ light and AMQP 1.0

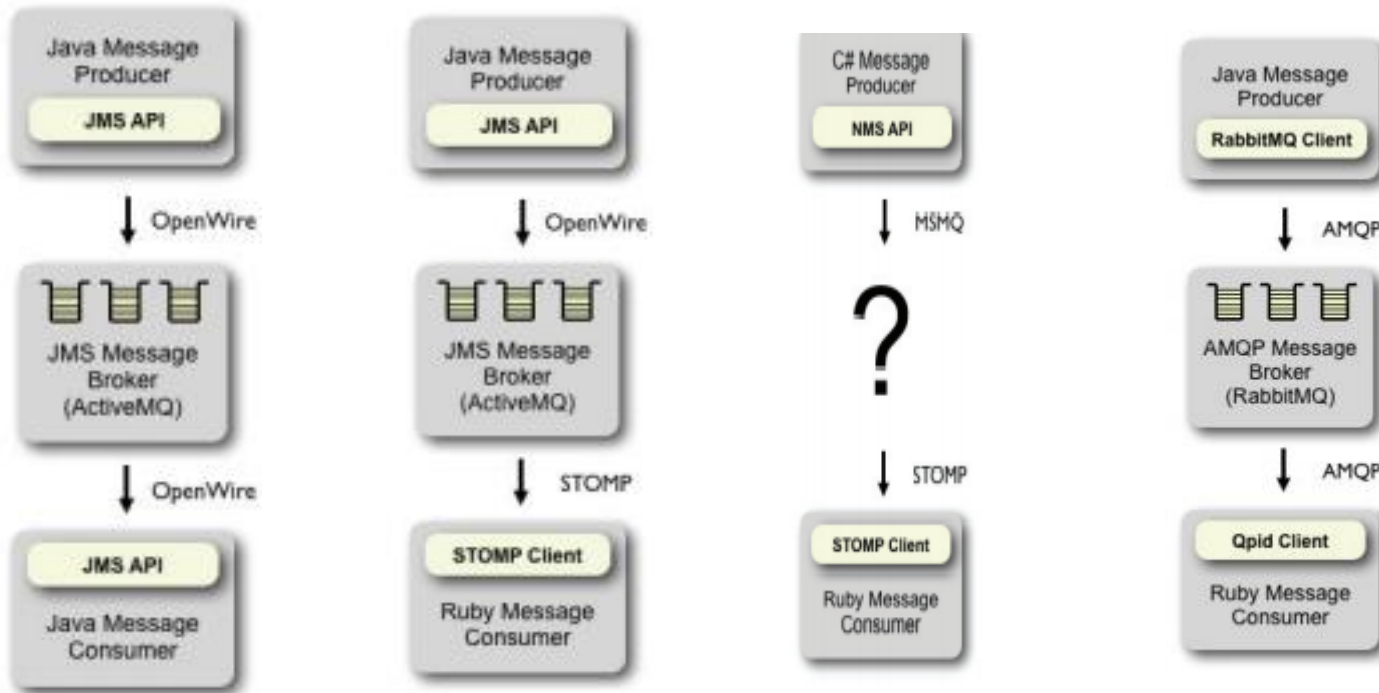
- ✓ AMQP was introduced in 2006 by John O'Hara from JP Morgan.
- ✓ AMQP is widely used in Finance, telecom and defense.
- ✓ Easy to migrate the applications to **PaaS**
- ✓ Web based **UI** for monitoring.
- ✓ Multiple language/Runtime support (Ruby,Python,Java,node.js)
- ✓ Easy to **Download, Install** and **Configure**
- ✓ Uses Open Source protocol (**AMQP 1.0**)
- ✓ **IBM BlueMix** is providing MQ Light Service via Message Hub
- ✓ Uses a microservices framework to simplify maintenance
- ✓ Offers flexibility to make it easy to include messaging in your development efforts
- ✓ Avoids Vendor lock In – Open freely downloadable client libraries.(Apache QPID)
- ✓ AMQP provides comparable feature set to JMS
- ✓ AMQP aides Micro services style of Messaging.
- ✓ AMQP assist in Message interoperability one of the key principles of SOA.



AMQP Customers...

- **JPMorgan**
Sends 1 billion AMQP messages per day; used in dozens of mission critical systems worldwide.
- **National Science Foundation**
- **NASA**
- **Red Hat**
The control plane of Red Hat's Cloud services use AMQP to control its internal operations.
- **VMware**
- **Google**
The open-source [Rocksteady](#) project uses [RabbitMQ](#) and complex event processing to analyse user defined metrics. Its goal is to allow root cause diagnosis of breakages in real time.
- **UIDAI, Government of India**
[UIDAI](#) is the the largest online identity project in the world aiming to provide each of India's 1.2 billion residents with a unique identity number. [UIDAI uses RabbitMQ](#) to decouple sub-components of its application allowing it to scale.
- **Mozilla**
Mozilla [use RabbitMQ in Pulse](#), their in-house eventing and pub-sub bus.
- **OpenStack**
[OpenStack](#) is an open-source initiative that provides a massively scalable cloud operating system.
- **AT&T**

Choose the Messaging broker - Interoperability









Protocol Capability – MQ vs AMQP

- ✓ **Point-to-Point messaging**
- ✓ Publish/Subscribe messaging
- ✓ Shared Subscriptions
- ✓ Message persistence
- ✓ Message expiry
- ✓ Message grouping
- ✓ **Message segmentation**
- ✓ Message selection
- ✓ Local transactions
- ✓ **XA/Global transactions**
- ✓ At least once/at most once/exactly once delivery
- ✓ HA failover
- ✓ Message Browsing








IBM MQ and MQ Light

Benefits and How its different from Traditional MQ Messaging?		
Features	IBM MQ 	MQ Light 
Components	Queues, Topic	(Dynamic) Topic
Components Management	should be pre-existing	created / deleted dynamically by Server
Administration	Studio, Appliance	Monitoring
Protocol	MQ Protocol	AMQP
Client Libraries	Heavy	Light
Security	SSL Protocol	SSL/TLS Protocol
Usage	Enterprise IT	Digital IT
Headers	MQMD, MQRFH2,	AMQP Headers (Minimal)
Cloud Based Support	No	Yes

MQ Light: Background

Benefits and How its different from Traditional MQ Messaging?		
Features	IBM MQ 	MQ Light 
Life Time	Forever (if MQ is appropriately configured)	7 Days Max. 30 Days
High Availability	Multi instance queue managers HA clusters	No HA (but if we want HA we have to go with AMQP support in MQ V8)
Delivery Assurance	One-time delivery of messages across a wide variety of platforms	At most once At least once
Transaction Management	Available	N/A but we have Quality of Service (QoS)
Durable Subscription	Can be created using attribute called Expiry Time (EXPIRY)	Can be available in MQ v8
Messaging Model	Asynchronous	Pub/Sub,asynchronous.

Languages Support for MQ Light

Programming languages that can connect MQ Light		
Language	Availability	Notes
Node.js 	Supported IBM Client	MQ Light Node-RED nodes are also available
Ruby 	Supported IBM Client	Rubygems
Java (Non-Blocking) 	Supported IBM Client	Java Liberty
Python 	IBM Client in Beta	Early access version only
PHP 	Qpid Proton	PHP is not an officially supported runtime in Bluemix
Scala 	Can use Java non-blocking client	Forum users report this working
C/C++	Qpid Proton	No release of C or C++ libraries directly
Perl 	Qpid Proton	

MQ Light: **Development / Runtime**

Options that are available for MQ Light Applications



Standalone MQ Light Server



MQ Light Shipped with IBM MQ



MQ Light Service in Bluemix with Message Hub



MQ Light Service



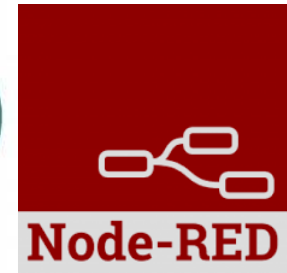
Message Hub (Connectivity with MQ Light API, REST API, KAFKA API Message Connect)

Standalone MQ Light Server : Demo

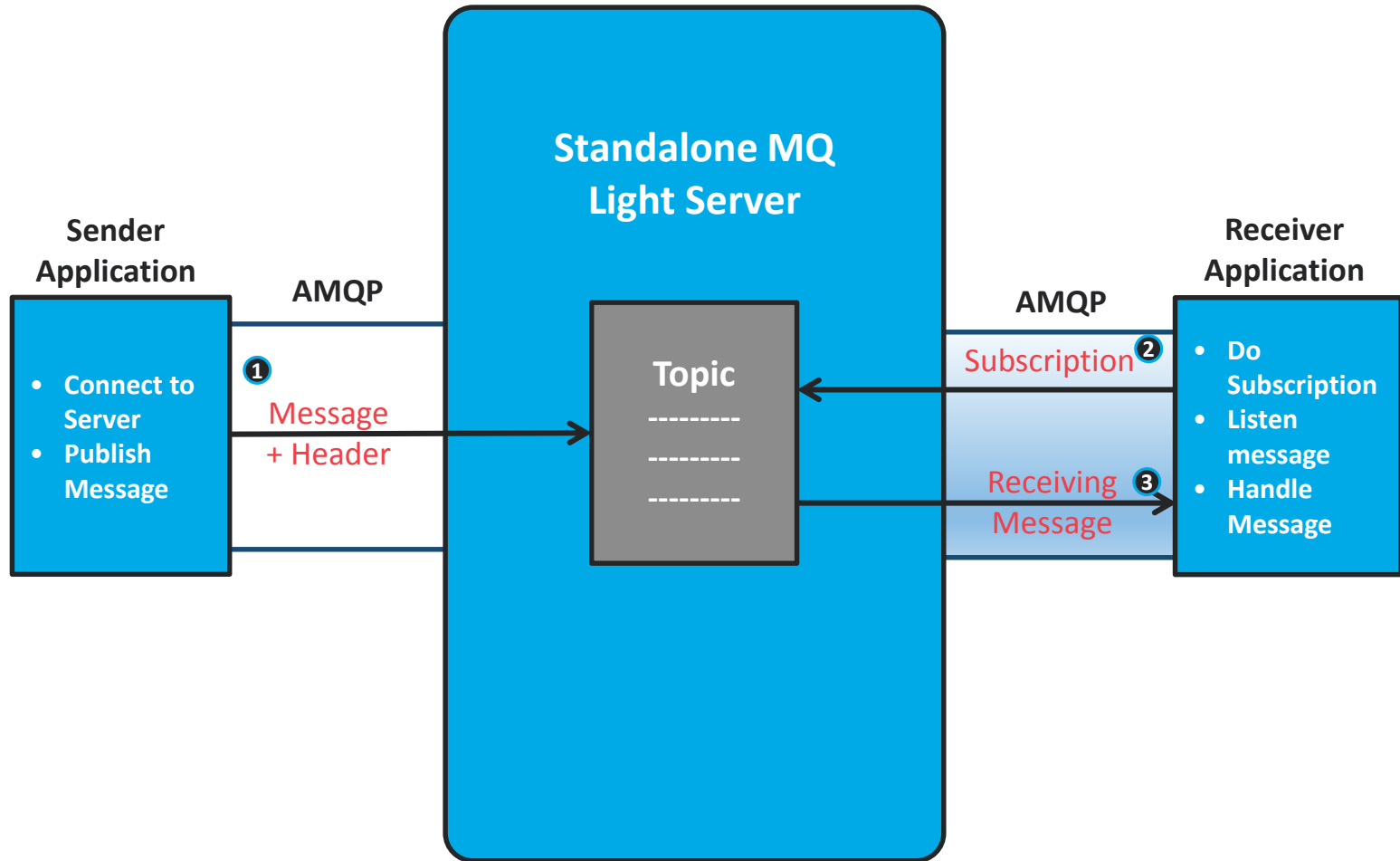
- MQ Light Server
- On premise Node-Red Application
- Produce & Consume Messages

Advantages

- Light weight infrastructure
- Low Memory footprint
- Less Administration Cprintost
- Less time to market
- Low License cost
- Supports Multiple languages
- High responsive



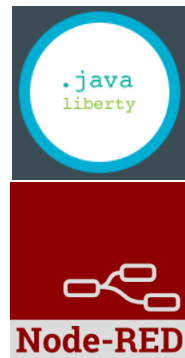
Standalone MQ Light Server : Demo



Bluemix + MQ Light Service: Demo

- Bluemix Account
- MQ Light Service
- Java Application: Worker offload
 - Local Development
 - Cloud Deployment (Cloud Foundry)
- Produce & Consume Messages
 - Front end & Back end application

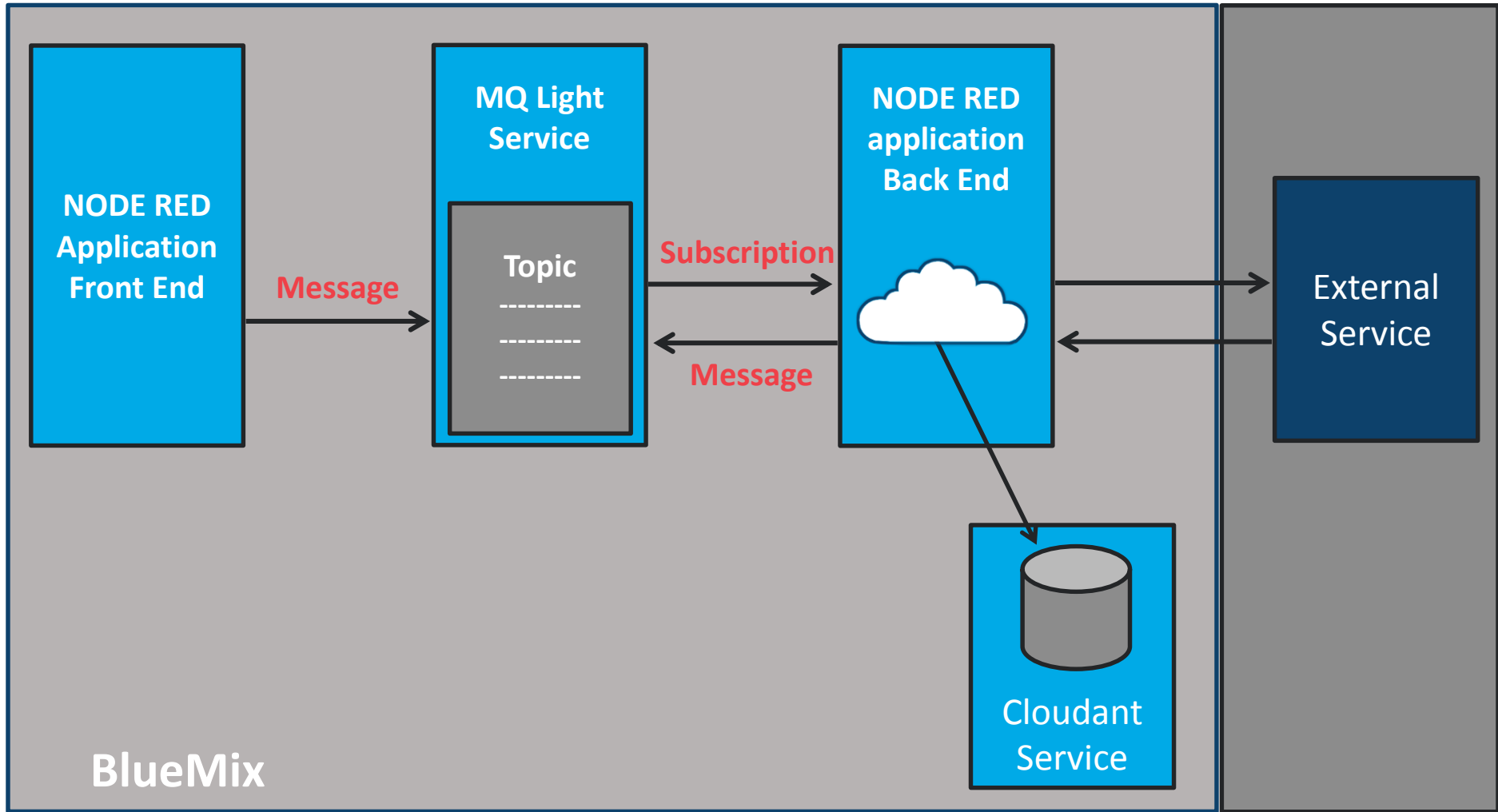
Cloud to Cloud Messaging



Advantages

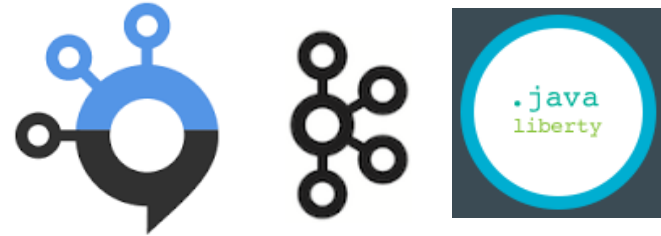
- Elastic Scale
- Wide range of APIs
- Connectivity
- Less Expensive

IBM BlueMix - MQ Light Service



Bluemix + MQ Light Service: Demo

- Bluemix Account
- Message Hub Service
- Apache Kafka REST API
- Java Liberty
- Message Hub Topic

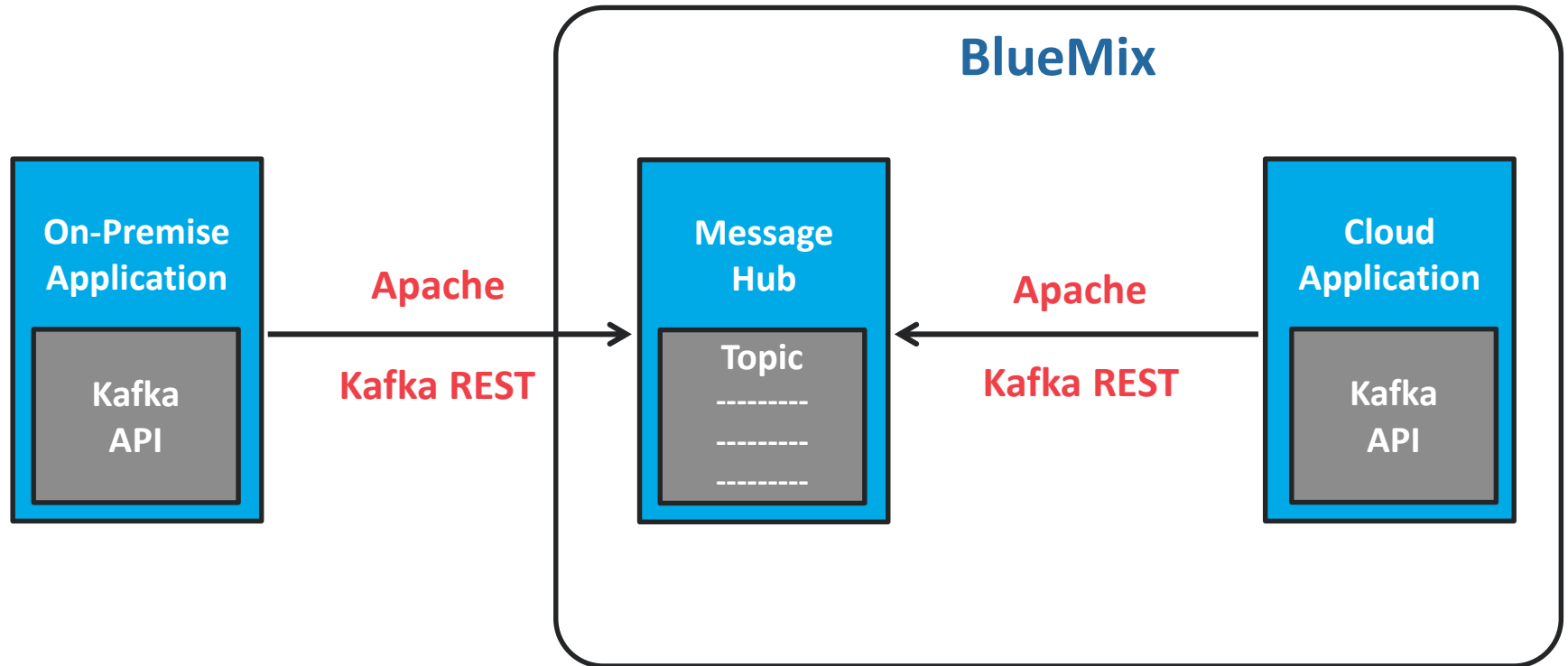


Connect using Apache Kafka:
Cloud ↔ On Premise

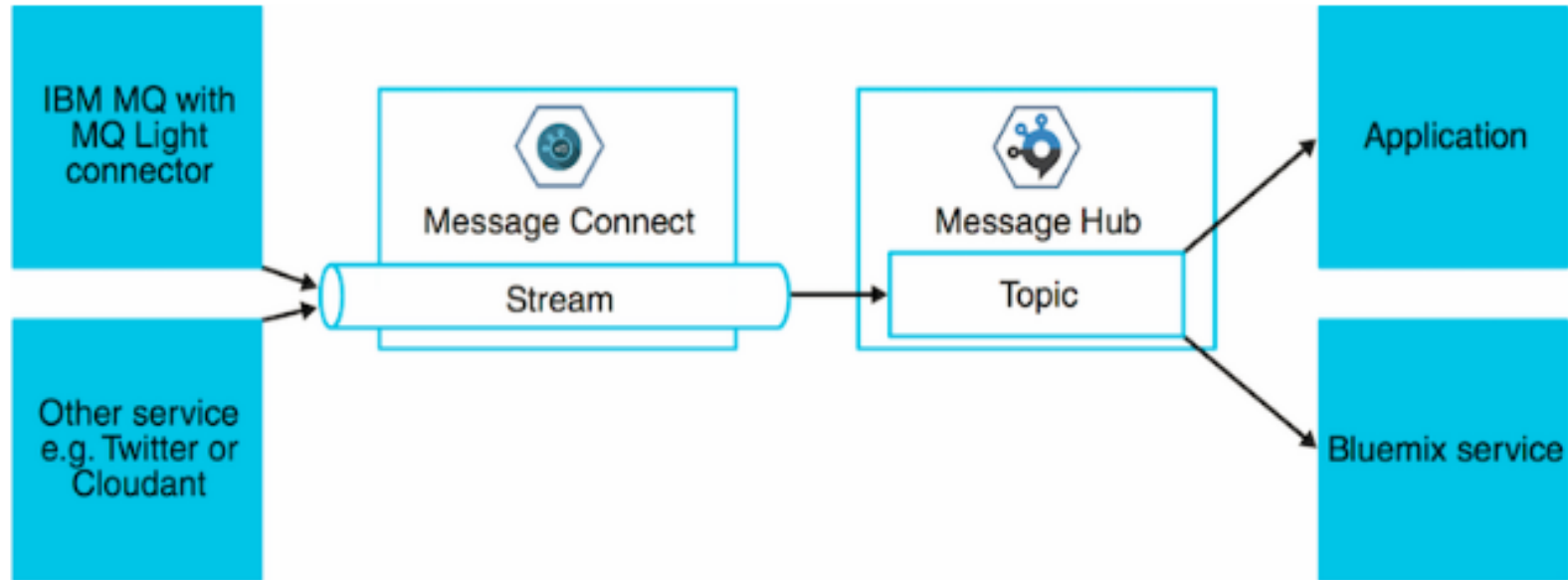
Advantages

- Elastic Scale
- Wide range of APIs
- Connectivity
- Less Expensive

IBM BlueMix–Message Hub–Apache Kafka



IBM Message Connect – Hybrid Messaging



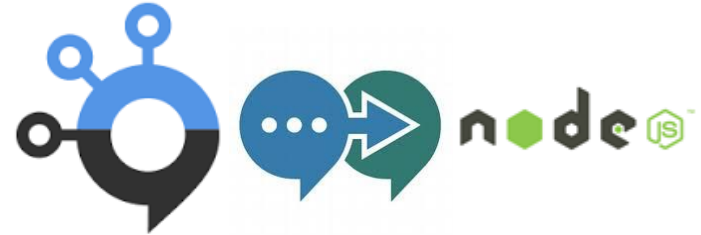
MQ Light connector will actually use the Secure Gateway service to create a secure connection to an on-premise MQ queue manager. Using the Secure Gateway, you don't have to expose the queue manager directly to the public internet. Instead, you use a Secure Gateway client on an on premise server to initiate a connection to Blue mix, thus creating a secure tunnel which you can use to connect safely to MQ

Questions and Answers Time!!

We're more than happy to help out

Bluemix + Message Hub: Demo

- BlueMix Account
- Message Hub Service
- MQ Light API
- Node JS
- Message Hub Topic



Connect using MQ Light API: Cloud
↔ On Premise

Advantages

- Elastic Scale
- Wide range of APIs
- Connectivity
- Less Expensive

IBM MQ + MQ Light Server : Demo

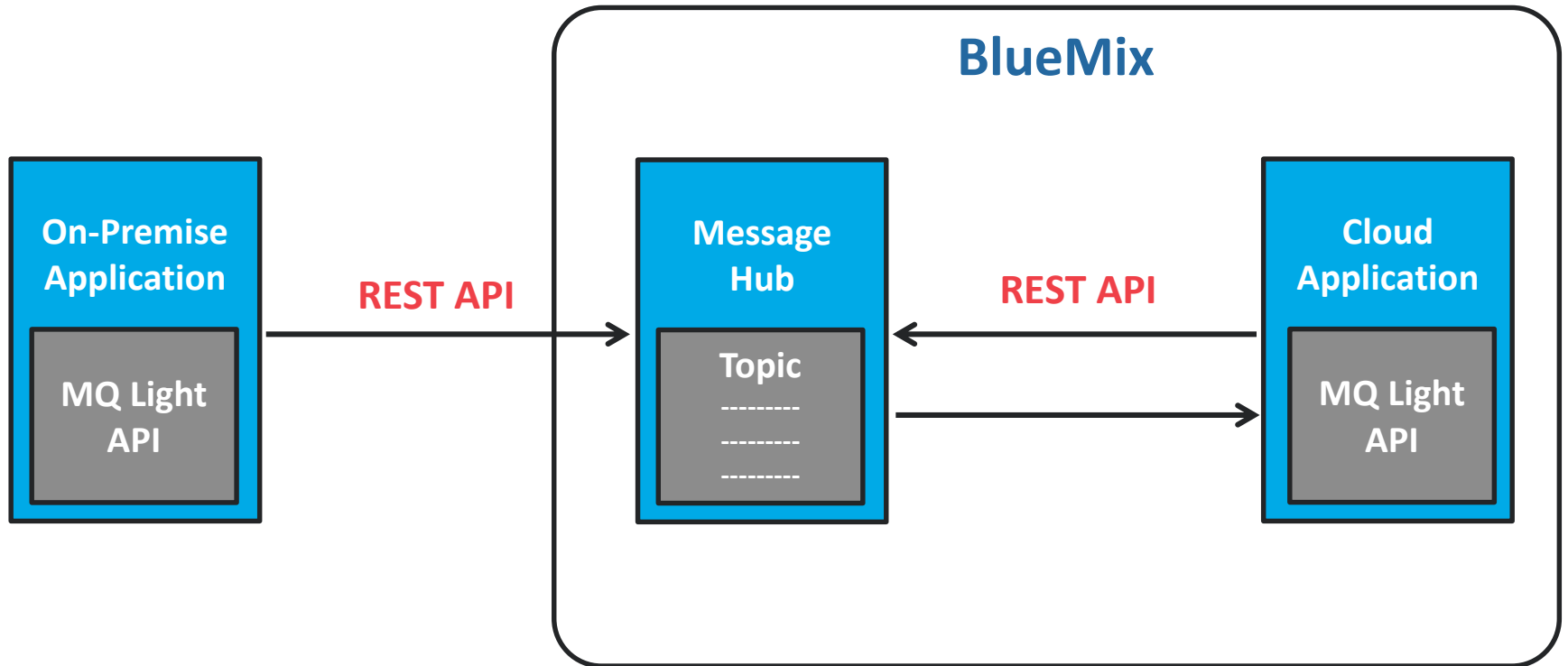
- IBM MQ Server
- SYSTEM.AMQP.SERVICE service
- SYSTEM.DEF.AMQP channel
- On premise Node JS Application
- Produce & Consume Messages



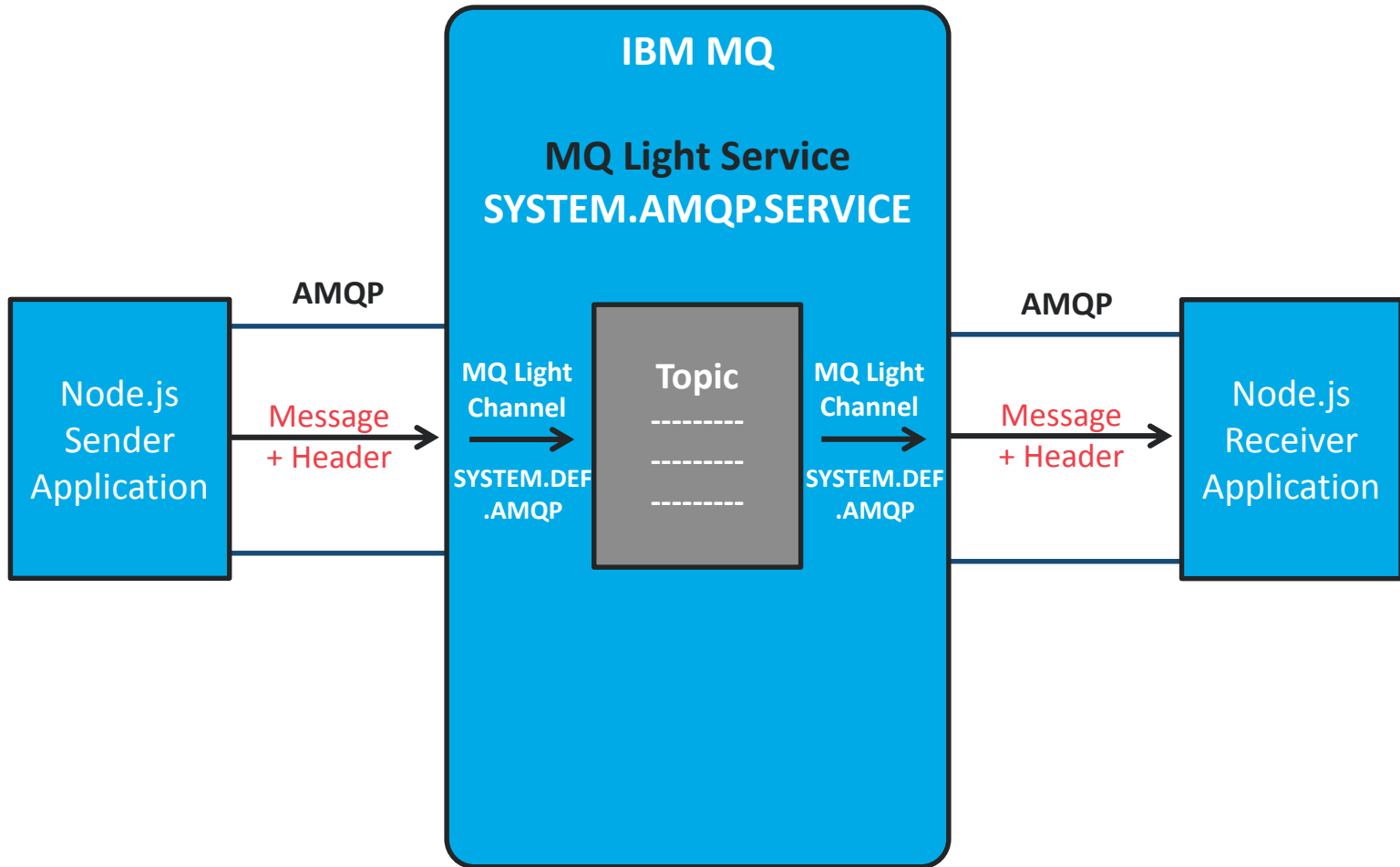
Advantages

- Legacy Applications connectivity
- No extra license cost
- Support for both Heavy applications and Light Applications
- Extra Security provided by IBM MQ

IBM BlueMix–**Message Hub**–MQ Light API



IBM MQ + MQ Light Server : Demo



Bluemix + Message Hub : Demo

- IBM MQ - Topic
- Bluemix Account
- Message Hub Service
- Message Connect Service
- MQ Light API
- Secure Gateway
- Message Hub Topic



**Connect using Message Connect:
Cloud ↔ On Premise**

Advantages

- Single point of Connectivity
- Multiple Sources / Streams
- Easy to maintain

Thank You

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